Public Meeting Regarding Funding for Cleaner, Safer School Buses

Sacramento, California October 14, 2005



Agenda

- Staff presentation:
 - -New Bus Funding
 - Retrofit Funding
 - Other Proposed Technical Updates
- Presentations by others
- Open discussion
- Closing remarks



Background

Public School Bus Fleets

- 743 Pre-1977 Buses
- Pre 1977: No Federal Safety standards
- Pre 1987: NOx and PM relatively uncontrolled
- Average mileage less than 14,000 miles per year



Children's Pollutant Exposure During Bus Commutes



School Bus Self Pollution Study

- ARB Study:
 - "Characterizing the Range of Children's Pollutant Exposure during School Bus Commutes"
- Significantly higher on-board concentration of diesel pollutants due to "self-pollution"



Health Risk

- Self pollution highest for older buses and with windows closed
- Lifetime cancer risk increase ~4% (~30 in a million lifetime risk)
- Increased risk of lower respiratory symptoms (6%) and daily hospitalizations for asthma (~1%)
- Children's exposures primarily from commute (not from loading, unloading, or waiting at bus stops)
- School bus still safer commute option than private vehicle



Lower Emission School Bus Program (Replacing Buses since 2001)

- Guidelines approved in 2000
 - Requires at least pre-1987 retirement
 - Encourages pre-1977 retirement
- Replaced 500 pre-1987 school buses
- Retrofit ~3,000 in-use diesel buses
- Some air districts have also replaced significant number of buses with local funds
- Guidelines will be updated this year



Budget Control Language and Available Funding



Legislature Appropriated \$25 Million for Cleaner, Safer School Buses

- \$25 million for 2005 2006 fiscal year
 - \$12.5 million for new bus purchases to replace pre-1977 school buses
 - \$12.5 million to retrofit in-use diesel school buses
- "Provide equitable geographic distribution of the funds in manner that reduces the risk to children's health from diesel emissions from school buses"



Change from Historical Funding Allocation Requires Public Process

- Historically, new bus fund allocations on a per capita basis
- Legislation specifically targets pre-1977 buses
- Population of pre-1977 buses does not track people population



Funding Options

\$12.5 Million New School Bus Funding Allocation Options

- Population based
- Percentage of pre-1977 buses
- Replacing oldest bus first

743 Pre-1977 School Buses in California

Air District	# Pre- 1977	
	Buses	
San Joaquin Valley	229	
South Coast	105	
Bay Area	100	
Monterey Bay Unified	43	
Antelope	29	
Mendocino	23	
Feather River	22	
San Diego	18	
Shasta	18	
Ventura	16	
Remaining Districts	140	

School districts in Kern, Mariposa, Modoc, Northern Sonoma, San Luis Obispo air districts have not reported any pre-1977 school buses



Estimated Allocations for \$12.5M in New School Bus Funding Based on the Replacing Oldest Bus First

100 Oldest Buses				
	No. of			
	Oldest			
Air District	Buses			
San Joaquin Valley Unified	38			
South Coast	30			
Bay Area	6			
Monterey Bay Unified	4			
Feather River	4			
Sacramento Metro	2			
Amador	2			
Mendocino	2			
Shasta	2			
Santa Barbara	1			
North Coast Unified	1			
Tehama	1			
Total	100			

- Number of buses replaced depends on replacement cost
- Highlighted districts have buses lower on the list which may not be replaced
- Requires specific buses to be replaced
- 100 oldest school buses in California range from 40 to 80 years old
 - One1925 MY
 - 23 1950 MY's
 - Remainder 1960 to 1967 MY's



Comparison of Funding Criteria for Largest Air Districts

Comparison of New Bus Funding Allocation Criteria for 5 Largest Air Districts

Air Districts with Fund Allocations	% of 100 Oldest	% of Pre-1977	% of People		
Air districts with Fund Allocations	Buses*	Bus Pop.	Pop		
Self-Administered Program					
San Joaquin Valley Unified APCD	38%	31%	10%		
South Coast AQMD	30%	14%	44%		
Bay Area AQMD	6%	13%	19%		
San Diego County APCD	N/A	2%	8%		
Sacramento Metropolitan AQMD	2%	2%	4%		

•Percentages for Oldest Bus First Method assumes funding will cover 100 buses. Actual number of buses purchased, and final percentages, dependent on bus prices.

More detailed charts available on our website:

http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm



Comparison of Funding Options for Largest Air Districts

Comparison of New Bus Funding Allocation Methods for					
5 Largest Air Districts					
	Oldest Bus	Pre-1977	People Pop.		
Air Districts with Fund Allocations	_	Aprox. # of New Buses	Aprox. # of New Buses		
Self-Administered I					
San Joaquin Valley Unified APCD	38	31	10		
South Coast AQMD	30	14	44		
Bay Area AQMD	6	13	19		
San Diego County APCD	N/A	2	8		
Sacramento Metropolitan AQMD	2	2	4		

Numbers of buses preliminary. Based on \$10K match and mix of diesel and CNG purchases *Buses will be replaced oldest bus first until funds are exhausted. Actual number of buses purchased dependent on bus prices.

More detailed funding charts available on our website: http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm



Other Funding Requirements



Match Requirements Options

- School district match
 - \$10,000 match for pre-1977 bus replacement Guideline requirement
 - \$12.5M buys ~10% more buses with required match
 - Air district may cover required match with own funds
- Should air district who self administer contribute additional funds?
 - 10% match Guideline requirement first two years of program



Diesel/CNG Split for New Bus Funding

- Current Funding split of 2/3 alternative fueled and 1/3 diesel fueled statewide goal
 - Alternative fueled allows greater emissions benefits per bus
 - Diesel fueled allows more buses to be purchased
- 'Goal' provides guidance, but allows local air district flexibility
- Allows diesel purchases in areas without necessary alternative fuel refueling infrastructure



AB 923 Program



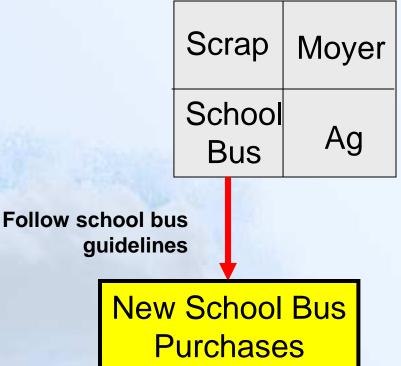
AB 923 Clean Air Projects Funding Source

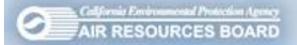
- Allows air districts to implement additional \$2 motor vehicle registration surcharge for clean air projects
- DMV collects fees for districts
- 14 districts have adopted
- New school bus purchases an allowable fund allocation



AB 923 Fund Clean Air Projects

MV Fees





Retrofit Control



\$12.5 Allocated to Retrofit Devices on In-use Diesel School Buses

- Retrofit ~1,000 diesel buses
- Allocations to be made on per capita basis
- Air districts must spend previous retrofit funds before receiving new money
- Expect grant agreements to air districts by end of October



Retrofit Device Requirements Legislative Directives

- Level 3 verification from Board reduce PM by at least 85%
- Apply to broadest range of year, make, and model of school bus diesel engine
- Operate across broadest range of operating school bus operation conditions and duty cycles
- Produce lowest possible NO₂ across the device



Ultra Low Sulfur Fuel Availability No Longer Impediment to Retrofit

- Ultra low sulfur diesel fuel will be available in all air districts.
 - Sept. 1, 2006 all retail sales of diesel fuel must meet 15 ppm maximum sulfur limit

Which Buses May Be Retrofit?

- Retrofit devices verified at level 3 PM reduction are available for 1994 to 2004 buses
 - Data logging recommended to verify bus duty cycle is appropriate for retrofit device
- Retrofit device must be verified at Level 3 at release of district's RFP
- Other retrofit devices are eligible if verified before RFPs released



Why Retrofit? Studies Show Children's Exposure During Bus Commute Significant

- 1994 to 2006 school buses emit 10X the PM as school bus with DPF or new 2007 MY bus
- 1988 to 1990 MY buses emit 60X PM
- 1991 to 1993 MY school buses emit 25X PM
- Reduces PM emissions by 85% or more
- Benefit children's health issues by reducing:
 - Incidence and severity of asthma attacks, chronic bronchitis, coughing, wheezing and phlegm formation
 - Susceptibility to allergens
 - Cancer risk



CHP Safety Inspection After Retrofit

CHP vehicle inspection required prior to return to service

Title 13 Section 1272 (c)



Other Proposed Technical Updates



Lower-Emission School Bus Program Guidelines Technical Changes Update

- Update retrofit component of program
 - -85% control
 - CHP inspection after retrofit installation
- Add provision allowing use of AB 923 funds for CNG fuel tank replacement
- Add purchase requirements for 2007 and later MY school buses



Proposed Purchase Requirements for 2007 and Later MY School Buses

- Heavy-duty alternative fueled engine
 - NOx standard 0.5 g/bhp-hr
 - -PM standard 0.01 g/bhp-hr
- Heavy-duty diesel fueled engine
 - -NOx standard 1.2 g/bhp-hr
 - -PM standard 0.01 g/bhp-hr



Program Milestones

- By October 31, 2005:
 - Retrofit funding grant agreements expected to air districts
- February 23 & 24, 2006:
 - ARB Board hearing to consider funding allocation methodology and Guidelines Update
- By March 31, 2006:
 - Expect new bus funding grant agreements issued to air districts and CEC



How to Contact Us

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- Visit ARB's web site at: http://www.arb.ca.gov/msprog/schoolbus/schoolbus.htm
- To receive automatic e-mail notification when new information is available, sign-up for ARB's list serve at:
 - http://www.arb.ca.gov/listserv/schoolbus.htm

